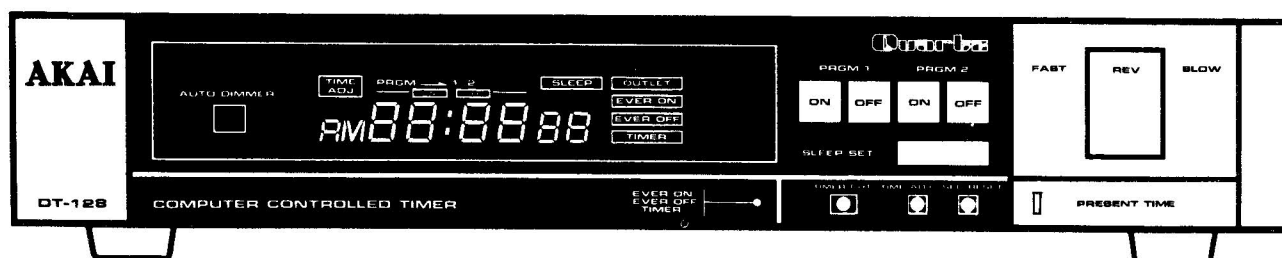
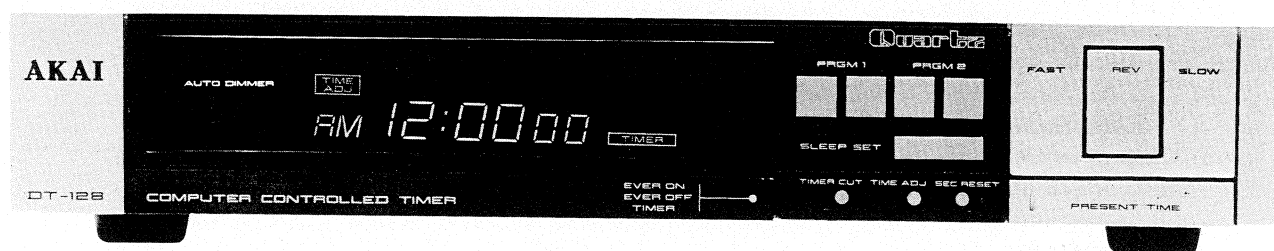


AKAI SERVICE MANUAL



COMPUTER CONTROLLED TIMER

MODEL **DT-128**



COMPUTER CONTROLLED TIMER

MODEL DT-128

SECTION 1	SERVICE MANUAL	3
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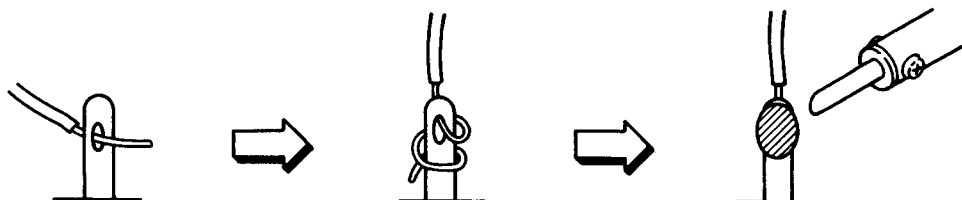
SAFETY INSTRUCTIONS

SAFETY CHECK AFTER SERVICING

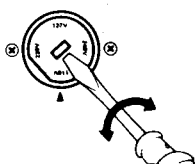
Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in-out jacks etc.)

PRECAUTIONS DURING SERVICING

1. Parts identified by the Δ symbol parts are critical for safety.
Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (Insulating Barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.
10. Voltage Conversion
Japan Model is not equipped with this facility. Japan Model is preset to 100V at the factory, but U/T Model can be set to 110V, 120V, 220V or 240V as required.
If your machine's voltage can be converted:
 - 1) Disconnect the power cord.
 - 2) Turn the VOLTAGE SELECTOR located on the rear panel with a screwdriver until the correct voltage is indicated.



SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

I. SPECIFICATIONS	4
II. CONTROLS	5
III. ADJUSTMENT	5
1. STANDARD FREQUENCY OSCILLATOR ADJUSTMENT	5
IV. COMPOSITION OF P.C BOARDS.....	6

For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I . SPECIFICATIONS

TIMER ACCURACY	±15 seconds within one month (approx. 20°C)
TIMER BASE	Quartz oscillator
TIMER OPERATION ACCURACY	Less than 0.2 seconds
TIMER DISPLAY	12 hour display, FL display
TIMER SYSTEM	Daily type
TIMER SET PERIOD	1 minute to 23 hours and 59 minutes
SLEEP TIME PERIOD	1 minute to 1 hour and 59 minutes
AC OUTLETS	SWITCHED x 2 Total 1200W maximum (Japan model) SWITCHED x 2 Total 600W maximum (U/T model)
POWER REQUIREMENTS	100V, 50Hz/60Hz (Japan model) 110V/120V/220V/240V, 50Hz/60Hz (U/T model)
POWER CONSUMPTION	7W (U/T, Japan Models)
DIMENSIONS	286 (W) x 49 (H) x 150 (D) mm (11.2 x 1.9 x 4.1 inches)
WEIGHT	1.0 kg (2.2 lbs)

* For improvement purposes, design and specifications are subject to change without notice.

II. CONTROLS

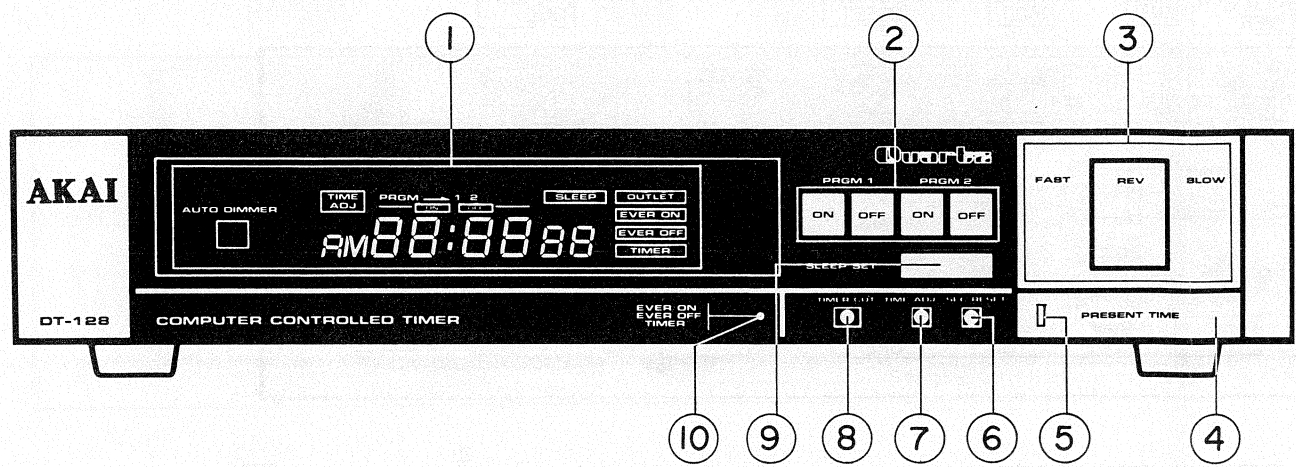


Fig. 2-1

1. FL DISPLAY

2. Program (PRGM-1 to PRGM-2) buttons
For programming.

3. FAST, REV and SLOW buttons
To set the present time, sleep time, turn on time and turn off time.
How to use:
To quickly advance the time → Depress the FAST button.
To slowly advance the time → Depress the SLOW button.
To quickly set back the time → Depress the REV and FAST buttons simultaneously.
To slowly set back the time → Depress the REV and SLOW buttons simultaneously.

4. PRESENT TIME button
To display the present time.
5. LED indicator
Lights when the present time is displayed and flashes on and off at all other times.

6. SEC RESET button
To reset the second indicator to zero.

7. TIME ADJ button
To set the present time.

8. TIMER CUT button
To stop timer controlled operation.

9. SLEEP SET button
To set the sleep time.

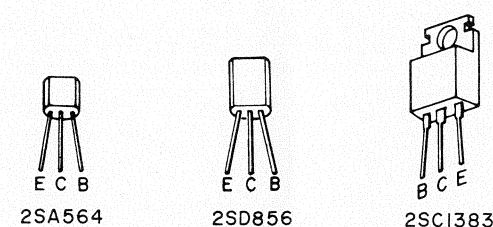
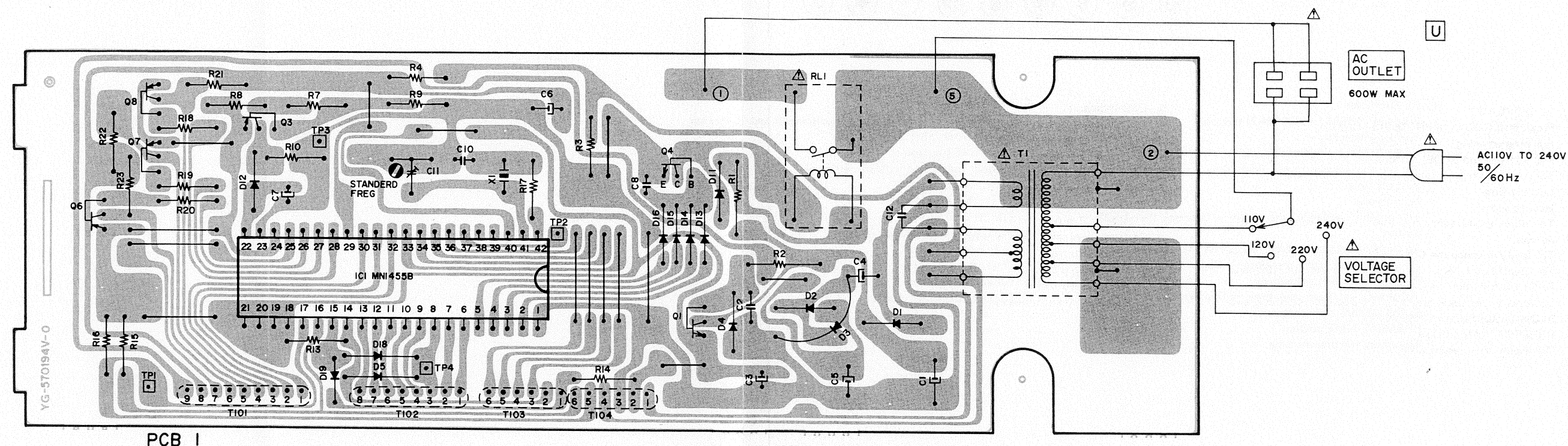
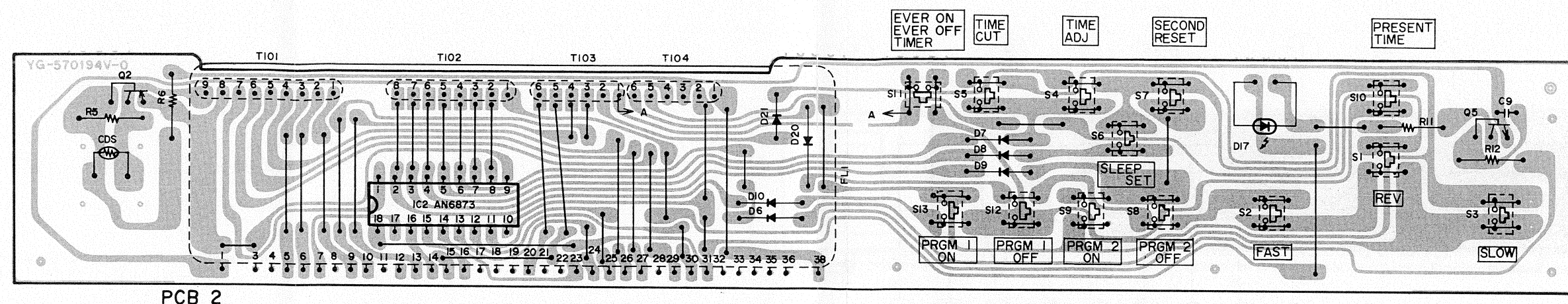
10. Timer mode button
To select the timer mode.

III. ADJUSTMENT

3-1. STANDERD FREQUENCY OSCILLATOR ADJUSTMENT

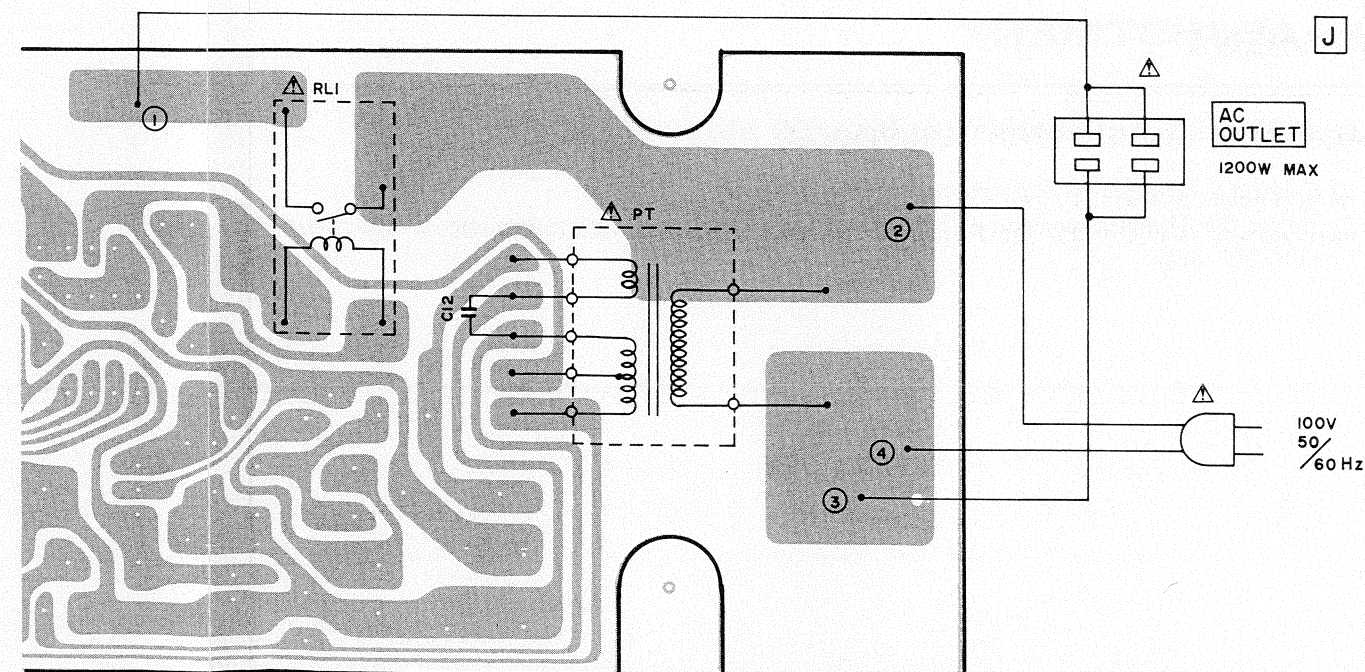
- 1) Connect a Frequency counter between TP2 and GND.
- 2) Adjust the Trimmer capacitor (C11), so that the Frequency counter Reading is 128.00016 Hz (7.81249 ms).

IV. COMPOSITION OF PC BOARDS



WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



SECTION 2

PARTS LIST

TABLE OF CONTENTS

1. PCB BLOCK	9
2. FINALY ASSEMBLY BLOCK	9
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Resistor and Capacitor which is not listed in this parts list, please refer to
COMMON LIST FOR SERVICE PARTS.

ATTENTION

1. When placing an order for parts, be sure to list the parts no., model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Parts List may be partially changed, please use this parts list for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List shows the parts that are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts". Select and order such parts from the "Common List for Service Parts".
2. The Recommended Spare Parts shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not be supplied in principle.
4. How to read list

a) Mechanism Block

b) P.C Board Block

2. HEAD BASE BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK GX-F66R
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20x03STL CMT
2-4	ZS-536488	BID20x08STL CMT
2-5	ZG-402895	CS ANGLE ADJUST SPRING

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

6. SYS. CON. P.C BOARD BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
6-1	BA-T2034A070A	PC SYS CON BLK GX-F44R
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-IC3	EI-331661	IC SN7405N
6-IC4	EI-336725	IC M54527P
6-TR1to4	ET-200985	TR 2SC2603 F,G
6-TR5to28	ET-554657	TR 2SA733A P,Q
6-D1	ED-318292	D SILICON H 1S2473T-77 T26
6-D2to4	ED-308952	D GERMA V 1K34A-LR F07
6-D5to10	ED-318292	D SILICON H 1S2473T-77 T26
6-X1	EI-318384	OSC X'TAL NC-18C 3.579545MHZ

SP (Service Parts) Classification

This reference numbers corresponds with symbol numbers of Schematic Diagrams.

5. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List. It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

1. PCB BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
1-IC1	EI-711472	IC MN1455BXA
1-IC2	EI-711473	IC AN6873N
1-Q1	ET-711469	TR 2SD856
1-Q2	ET-350335	TR 2SA564 Q
1-Q3	ET-350335	TR 2SA564 Q
1-Q4	ET-706935	TR 2SC1383NC
1-Q5	ET-342696	TR 2SC828 Q,R
1-Q6	ET-350335	TR 2SA564 Q
1-Q7	ET-350335	TR 2SA564 Q
1-Q8	ET-350335	TR 2SA564 Q
1-D1	ED-711466	D SILICON S5277B
1-D2	ED-711466	D SILICON S5277B
1-D3	ED-711466	D SILICON S5277B
1-D4	ED-711480	D ZENER H MA1056
1-D5	ED-708669	D SILICON 1S2076A
1-D6	ED-708669	D SILICON 1S2076A
1-D7	ED-708669	D SILICON 1S2076A
1-D8	ED-708669	D SILICON 1S2076A
1-D9	ED-708669	D SILICON 1S2076A
1-D10	ED-708669	D SILICON 1S2076A
1-D11	ED-708669	D SILICON 1S2076A
1-D12	ED-708669	D SILICON 1S2076A
1-D13	ED-708669	D SILICON 1S2076A
1-D14	ED-708669	D SILICON 1S2076A
1-D15	ED-708669	D SILICON 1S2076A
1-D16	ED-708669	D SILICON 1S2076A
1-D17	ED-749733	D LED 41YHL
1-D18	ED-708669	D SILICON 1S2076A
1-D19	ED-708669	D SILICON 1S2076A
1-D20	ED-708669	D SILICON 1S2076A
1-D21	ED-708669	D SILICON 1S2076A
1-X1	EI-711471	OSC X'TAL 4.1943MHz
1-CDS1	ET-706957	PHOTO SENSOR MKY-76C
1-RL1	EP-708679	REALY AR321173
1-C11	EC-706953	C S-FIX
1-S1	ES-749734	SW TACT TM06-F
1-S2	ES-749734	SW TACT TM06-F
1-S3	ES-749734	SW TACT TM06-F
1-S4	ES-749734	SW TACT TM06-F
1-S5	ES-749734	SW TACT TM06-F
1-S6	ES-749734	SW TACT TM06-F
1-S7	ES-749734	SW TACT TM06-F
1-S8	ES-749734	SW TACT TM06-F
1-S9	ES-749734	SW TACT TM06-F
1-S10	ES-749734	SW TACT TM06-F
1-S11	ES-749734	SW TACT TM06-F
1-S12	ES-749734	SW TATC TM06-F
1-S13	ES-749734	SW TACT TM06-F
1-FLD1	EM-344934	IND FL 6-MT-55ZYK
1-PTU	BT-749730	△ TRANS POWER DT-128-M-U (U)
1-PTJ	BT-749729	△ TRANS POWER DT-128-J-J (J)

2. FINAL ASSEMBLY BLOCK

REF. NO.	PARTS NO.	DESCRIPTION
2-1	BD-749723	PANEL FRONT ASSY
2-2	SK-749728	RUBBER BUTTON SHEET OPERATION
2-3	SA-701694	FOOT
2-4	ZS-749735	CTBID30×06STL BNI
2-5	ZW-749736	RV NYL35×045
2-6	EW-749732	△ AC CORD DT-128-M-U (U)
2-7	EW-749731	△ AC CORD DT-128-J-J (J)
2-8	EJ-349174	△ SOCKET OUTLET S2T-732T-122
2-9	ES-711484	△ SW SELECTOR (S14) (U)

INDEX

PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.	PARTS NO.	REF. NO.
BD-749723	2-1	ES-749734	1-S10						
BT-749729	1-PTJ	ES-749734	1-S9						
BT-749730	1-PTU	ES-749734	1-S11						
EC-706953	1-C11	ES-749734	1-S1						
ED-708669	1-D20	ES-749734	1-S12						
ED-708669	1-D7	ET-342696	1-Q5						
ED-708669	1-D6	ET-350335	1-Q3						
ED-708669	1-D10	ET-350335	1-Q8						
ED-708669	1-D19	ET-350335	1-Q7						
ED-708669	1-D8	ET-350335	1-Q6						
ED-708669	1-D9	ET-350335	1-Q2						
ED-708669	1-D18	ET-706935	1-Q4						
ED-708669	1-D21	ET-706957	1-CDS1						
ED-708669	1-D13	ET-711469	1-Q1						
ED-708669	1-D16	EW-749731	2-7						
ED-708669	1-D15	EW-749732	2-6						
ED-708669	1-D12	SA-701694	2-3						
ED-708669	1-D14	SK-749728	2-2						
ED-708669	1-D11	ZS-749735	2-4						
ED-708669	1-D5	ZW-749736	2-5						
ED-711466	1-D2								
ED-711466	1-D1								
ED-711466	1-D3								
ED-711480	1-D4								
ED-749733	1-D17								
EI-711471	1-X1								
EI-711472	1-IC1								
EI-711473	1-C2								
EJ-349174	2-8								
EM-344934	1-FLD1								
EP-708679	1-RL1								
ES-711484	2-9								
ES-749734	1-S2								
ES-749734	1-S8								
ES-749734	1-S13								
ES-749734	1-S4								
ES-749734	1-S3								
ES-749734	1-S6								
ES-749734	1-S5								
ES-749734	1-S7								

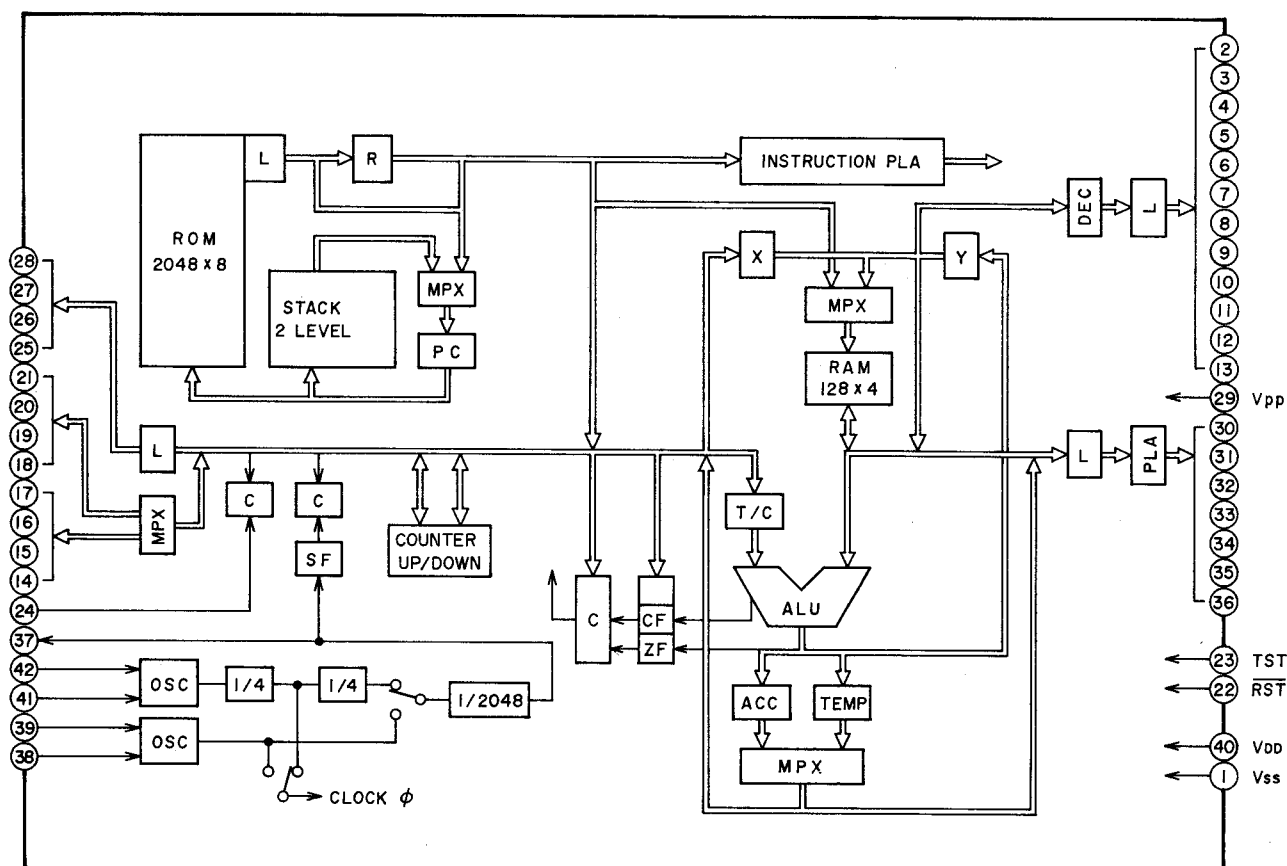
SECTION 3

SCHEMATIC DIAGRAM

1. SCHEMATIC DIAGRAM OF IC 11
2. DESCRIPTION OF DISPLAY.....12
3. DT-128 N0830301B SCHEMATIC DIAGRAM 13

1. SCHEMATIC DIAGRAM OF IC

MN1455BXA



Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	VSS	TO GND (0V)	22	RST	RESET at ACTIVE "L"
2	CO11	LED control present time indicating = "H" Others = 	23	TEST	TEST terminal, to VSS (0V)
3	CO10		24	SNS0	Sencer INPUT, to VDD
4	CO9		25	EO0	SEGMENT DATA * ^⑤ ^⑬ * ^③ ^⑫ * ^④ ^⑪ ^⑭ ^⑯ * ^⑦ ^⑩ ^⑮
5	CO8		26	EO1	
6	CO7		27	EO2	
7	CO6	SEGMENT DATA * ^① ^② ^⑥ ^⑧ ^⑨	28	EO3	
8	CO5	TIMING DATA output at ACTIVE "L"	29	Vpp	SEGMENT DATA a b c d e f g
9	CO4		30	DO0	
10	CO3		31	DO1	
11	CO2		32	DO2	
12	CO1		33	DO3	
13	CO0	KEY INPUT INPUT at ACTIVE "L"	34	DO4	
14	A13		35	DO5	
15	A12		36	DO6	
16	A11		37	OSC128	CLOCK MONITOR TERMINAL
17	A10		38	X'TAL 4	NOT USE
18	B13	H = 12 L = 24	39	X'TAL 3	+5V X'tal
19	B12	Not use (Connect to VDD)	40	VDD	
20	B11		41	X'TAL 2	
21	B10		42	X'TAL 1	

indicated * MARKS are Refer to FLD chart.

2. DESCRIPTION OF THE IC MN 1455BXA

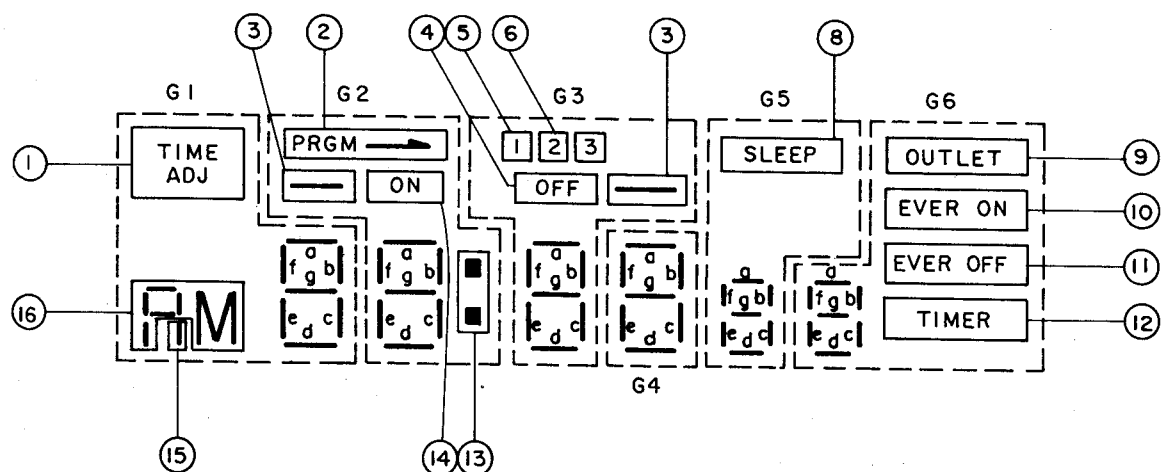
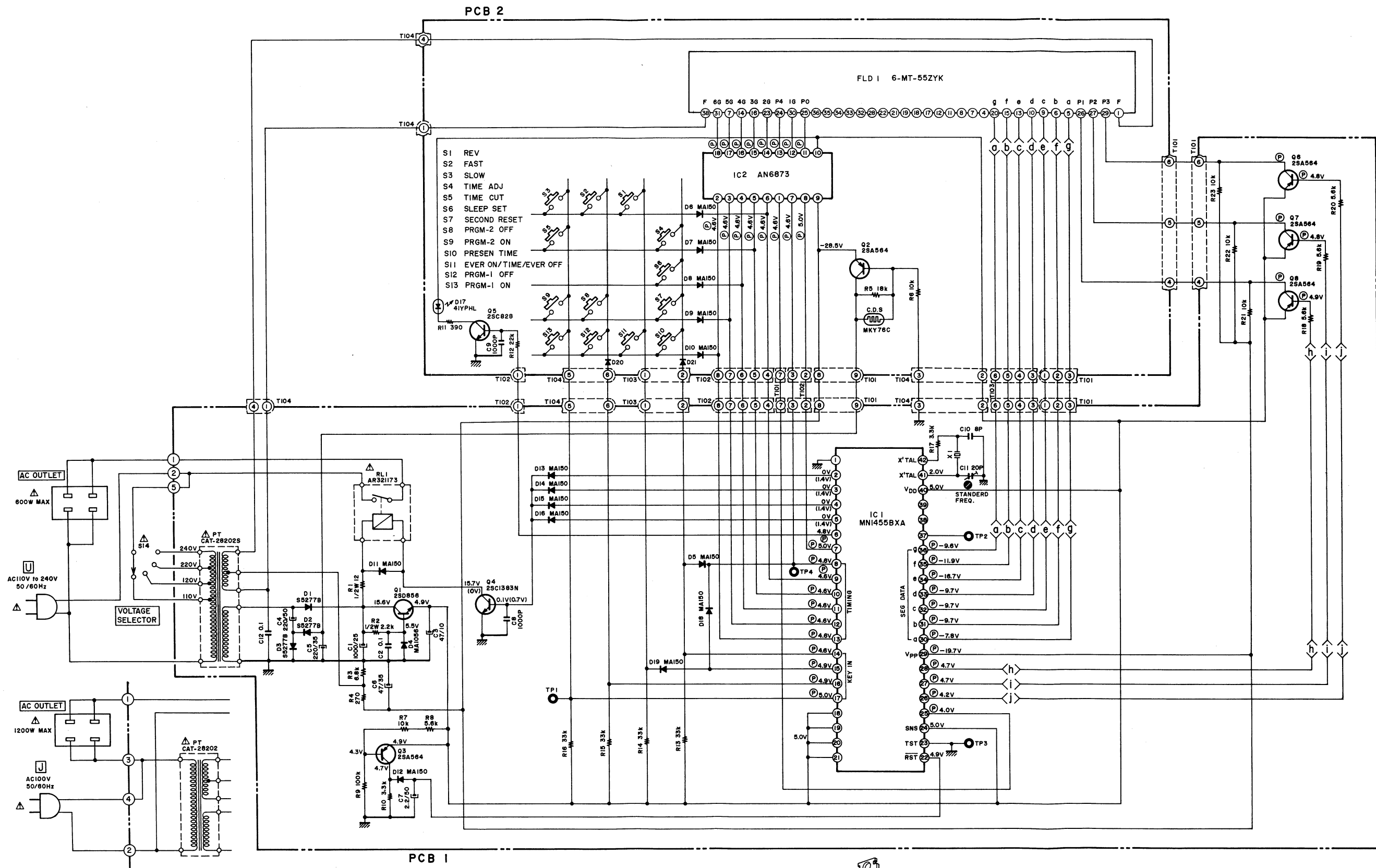


Fig. 4 FL DISPLAY

Pin No.	Internal Connection	Pin No.	Internal Connection
1	Filament	20	SEGMENT g
2	NC	21	G3 (GRID 3)
3	G1 (GRID 1)	22	G4 (GRID 4)
4	NC	23	G4 (GRID 4)
5	SEGMENT a	24	G5 (GRID 5)
6	SEGMENT b	25	SEGMENT ① ② ⑥ ⑧ ⑨
7	G1 (GRID 1)	26	SEGMENT ⑦ ⑩ ⑮
8	G2 (GRID 2)	27	SEGMENT ④ ⑪ ⑭ ⑯
9	SEGMENT c	28	G5 (GRID 5)
10	SEGMENT d	29	SEGMENT ③ ⑫
11	G2 (GRID 2)	30	G6 (GRID 6)
12	NC	31	SEGMENT ⑤ ⑬
13	SEGMENT e	32	NC
14	G2 (GRID 2)	33	NC
15	SEGMENT f	34	NC
16	G3 (GRID 3)	35	G6 (GRID 6)
17	NC	36	NC
18	NC		
19	NC	38	Filament

NC = No connection

DT-128



WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

VOLTAGES INDICATED ARE MEASURED AT "PRESENT TIME" MODE () FOR "EVER ON" MODE

Ⓟ INDICATES PULSE SIGNAL

FOR IC1 Ⓟ Pin

DC 4.8V AT PRESENT TIME MODE

Ⓟ AT OTHER MODES

ECB
2SA564
2SC828

ECB
2SD856

BCE
2SC1383

NOTE

UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μ F 50 WV(J)

(AUDIO TIMER)
DT-128
SCHEMATIC DIAGRAM
No. 830301B